

IN THE CLAIMS

The following is the complete listing of claims:

1. (Currently amended) A method of cleaning a chamber of an electron beam treatment apparatus, the method comprising:

- (a) generating an electron beam current through a cleaning gas to energize the cleaning gas in the chamber of the electron beam treatment apparatus;
- (b) monitoring an electron beam current;
- (c) adjusting a pressure of the cleaning gas to maintain the electron beam current at a substantially constant value; and
- (d) stopping the flow of cleaning gas when the cleaning gas pressure becomes substantially constant for a predetermined length of time.

2-3. (Canceled)

4. (Original) The method of claim 1 wherein the cleaning gas comprises an oxygen-based gas.

5. (Original) The method of claim 4 wherein the oxygen-based gas comprises one or more of O₂, ozone, NO, and H₂O.

6. (Original) The method of claim 1 wherein the cleaning gas comprises a fluorine-based gas.

7. (Previously presented) The method of claim 6 wherein the fluorine-based gas comprises one or more of NF₃, F₂, CF₄, C₂F₆, C₃F₈ and SF₆.

8. (Currently amended) A method of cleaning an electron beam treatment chamber, the method comprising:

- (a) generating an electron beam current through a cleaning gas to energize the cleaning gas in the electron beam treatment chamber; and
- (b) adjusting a pressure of the cleaning gas to maintain the electron beam current at a substantially constant value; and
- (c) stopping the flow of cleaning gas after the cleaning gas pressure becomes substantially constant for a predetermined length of time.

9. (Original) The method of claim 8 wherein the cleaning gas comprises an oxygen-based gas.

10. (Original) The method of claim 9 wherein the oxygen-based gas comprises one or more of O₂, ozone, NO, and H₂O.

11. (Original) The method of claim 8 wherein the cleaning gas comprises a fluorine-based gas.

12. (Previously presented) The method of claim 11 wherein the fluorine-based gas comprises one or more of NF₃, F₂, CF₄, C₂F₆, C₃F₈ and SF₆.

13. (Original) The method of claim 8 wherein a gas pressure of about 1 Torr or greater is maintained in the chamber.

14. (Original) The method of claim 9 wherein a gas pressure of about 1 Torr or greater is maintained in the chamber.

15. (Original) The method of claim 11 wherein a gas pressure of about 1 Torr or greater is maintained in the chamber.

16. (Currently amended) A method of cleaning a chamber of an electron beam treatment apparatus, the method comprising:

- (a) introducing a cleaning gas into the chamber;
- (b) generating an electron beam current through the cleaning gas to energize the cleaning gas in the chamber;
- (c) setting in the chamber, an electron beam current of about 1 mA or above;
- (d) adjusting a pressure of the cleaning gas to maintain the electron beam current at a substantially constant value; and
- (e) determining an endpoint of the cleaning process and stopping introduction of the cleaning gas when the cleaning gas pressure reaches a substantially constant value and maintains the value for a length of time of 5 seconds.

17. (Previously presented) The method of claim 16 wherein the cleaning gas comprises an oxygen-based gas.

18. (Previously presented) The method of claim 17 wherein the oxygen-based gas comprises one or more of O₂, ozone, NO, and H₂O.

19. (Previously presented) The method of claim 16 wherein the cleaning gas comprises a fluorine-based gas.

20. (Previously presented) The method of claim 19 wherein the fluorine-based gas comprises one or more of NF₃, F₂, CF₄, C₂F₆, C₃F₈ and, SF₆.

21. (Previously presented) The method of claim 1 comprising stopping the flow of cleaning gas when the cleaning gas pressure becomes substantially constant for a length of time of 5 seconds.

22. (Previously presented) The method of claim 8 comprising stopping the flow of cleaning gas when the cleaning gas pressure becomes substantially constant for a length of time of 5 seconds.

23. (Previously presented) The method of claim 16 comprising setting in the chamber, an electron beam current of about 10 mA or above.